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FUNGI OF NEW MEXICO¹

PAUL C. STANLEY

The flowering plants and vascular cryptogams of New Mexico are now fairly well known and much has been published concerning them. The collections upon which our knowledge is based were begun as early as 1820, and some of the larger and more important ones were made from 1846 to the middle fifties, although most of our knowledge of the plants of the state results from the extensive collections obtained in the last twenty-five years.

Concerning the lower cryptogams of New Mexico, however, only the most fragmentary information is available. The early collectors paid little attention to any but the higher plants. August Fendler (1846-47) and Charles Wright (1851-52) gathered a few mosses and hepatics, but even the most recent collectors have taken little interest in those groups or in the lichens and fungi. Dr. T. H. Macbride spent one season in New Mexico collecting Myxomycetes and published² a list of 25 species which he obtained. Prof. T. D. A. Cockerell, ever an untiring student of matters pertaining to the natural history of the state, has collected many specimens of cryptogams, and has published³ the only list of New Mexican fungi (46 species) which has thus far appeared. Several mycologists—S. M. Tracy, F. S. Earle, David Griffiths, G. G. Hedgcock, E. W. D. Holway, and perhaps others—have collected in New Mexico. In the spring of 1914 Dr. J. C. Arthur and Dr. F. D. Fromme visited the state for the purpose of securing material for their investigations of the Uredinales. But the only results from these explorations, so far as the literature of New Mexican mycology is concerned, have been scattered descriptions of new species or incidental references in various monographs.

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² Proc. Iowa Acad. Sci. 12: 33-38. 1905.

³ Jour. Myc. 10: 49-51. 1904.

Although the present writer's chief interest has always been in the phanerogamic flora of New Mexico, soon after the beginning of his studies in the state (in 1909) he began to collect such of the lower cryptogams as he happened upon. It is to be regretted that more attention was not devoted to them and much larger collections obtained, as might easily have been done especially in the southern part of the state. During three different years, however, the writer has spent some time in searching especially for parasitic fungi: in 1908 in the Santa Fe and Las Vegas mountains; in 1911 in Rio Arriba and San Juan counties; and in 1914 in the vicinity of Brazos Canyon, Rio Arriba County. The present paper is based chiefly upon the collections thus obtained. There are also included references to many specimens obtained by Mr. E. O. Wooton. Prof. Cockerell has very kindly furnished a manuscript list of species of his collection not included in his published list, while Dr. Arthur has made available material which permits the inclusion of several species, as well as specimens showing more extended distribution. Reference is made also to such reliable data as have been found in literature, but no doubt some published records have been overlooked.

Not being a mycologist, the writer has been obliged to turn to others for the identifications of his collections and he takes pleasure in acknowledging the generous interest and pains taken by those who have named the material. Dr. J. C. Arthur has furnished the identifications of the Uredinales; Dr. G. P. Clinton those of the Ustilaginales; Dr. W. A. Murrill the Agaricales and Lycoperdales; and Dr. C. E. Fairman, Dr. David R. Sumstine, and Prof. Guy West Wilson those of the other groups. Special thanks are due Dr. Arthur upon whom fell the task of naming the larger part of the specimens. Dr. Arthur has also furnished supplementary material and data and has revised the manuscript of the Uredinales.

Although the chief part of the present list consists of the Uredinales and Ustilaginales, it seems worth while to publish the lists of other groups, although they are evidently only fragmentary. It is greatly to be desired that in the near future an adequate study

may be made of the Agaricales and Lycoperdales, of which the New Mexico mountains will doubtless furnish many species.

CHYTRIDALES

SYNCHYTRIUM FULGENS Schröt.

On *Anogra coronopifolia* (T. & G.) Britton: Dulce, Aug. 19, 1911, Standley 8106. Determined by Sumstine.

PERONOSPORALES

(Determined by Prof. Guy West Wilson, unless stated otherwise)

ALBUGO BLITI (Biv.) Kuntze

On *Amaranthus Powellii* S. Wats. (a new host): Plains 35 miles south of Torrance, Aug. 10, 1909, Wooton (determined by Sumstine); Pecos, Aug. 22, 1908, Standley 5191; Cedar Hill, Aug. 15, 1911, Standley 7900. On *Amaranthus blitoides* S. Wats.: Torrance, Aug. 11, 1909, Wooton.

ALBUGO CANDIDA (Pers.) Roussel

On *Sophia incisa* (Engelm.) Greene: Filmore Canyon, Sept. 20, 1908, Standley; Winsor Creek, July 13, 1908, Standley 4340. On *Cheirinia* sp.: Range Reserve, Dona Ana Co., May 14, 1913, Wooton; San Andreas Mts., October, 1914, Wooton.

ALBUGO FROELICHIAE G. W. Wilson

Reported from New Mexico, on *Cladothrix lanuginosa* Nutt. (*Tidestromia lanuginosa* (Nutt.) Standley⁴) by Wilson.⁵

ALBUGO IPOMOEAE-PANDURATAE (Schw.) Swingle

On *Ipomoea hirsutula* Jacq.: Round Mt., above Tularosa, July 22, 1897, Wooton.

⁴ Jour. Wash. Acad. 6: 70. 1916.

⁵ Bull. Torrey Club 35: 362. 1908.

ALBUGO TRIANTHEMAE G. W. Wilson

On *Trianthema Portulacastrum* L.: Mesilla Valley, August, 1908, Standley.

The type was collected near Las Cruces by Wooton. The species is known only from the Mesilla Valley.

PERONOSPORA LEPIDI (McAlp.) G. W. Wilson

On *Sophia incisa* (Engelm.) Greene (a new host): Placitas, Aug. 3, 1910, Wooton.

PERONOSPORA PARASITICA (Pers.) Fries

On *Sophia incisa* (Engelm.) Greene: Beatty's Cabin, Aug. 8, 1908, Standley 4842. On *Sophia ochroleuca* Wooton (a new host): Mesilla Valley, 1908, Standley 3886.

PHYSOTHECA HALSTEDII (Farl.) G. W. Wilson

On *Ximenesia exauriculata* (Rob. & Greenm.) Rydb.: Pecos, Aug. 21, 1908, Standley 5154; Raton, June 22, 1911, Standley 6309.

PHYTOPHTHORA INFESTANS (Mont.) De Bary?

On *Solanum tuberosum* L. (cultivated): White Mts., Aug. 15, 1908, Wooton. Determined by Sumstine.

SPHAERIALES

(Erysiphaceae determined by Prof. Guy West Wilson, the others by Dr. C. E. Fairman, unless stated otherwise)

ASTERINA MEXICANA Ellis & Ev.

On *Agave neomexicana* Woot. & Standl.: Queen, July 31, 1909, Wooton. "Perithecia surrounded at base by mycelial threads. Ascii abruptly stipitate, $60 \times 17-20 \mu$; or saccate or globose; about $25-30 \mu$ in diam. Sporidia: upper cell smaller and globose; lower cell longer and oblong, $24-30 \times 10-12 \mu$. This was orig-

inally collected in Mexico, and I do not know whether it has been found in the States previously to the discovery of this specimen or not." (Fairman.)

AUERSWALDIA PRINGLEI (Peck) Sacc.

On leaves of *Yucca macrocarpa* (Engelm.) Coville: Mesa west of Organ Mts., September, 1908, Standley. "Sporidia uniseriate, hyaline then yellowish brown, oblong-elliptical, rounded at ends, 27-33 × 12-14 μ ." (Fairman.)

CLAVICEPS PURPUREA Fr.

On *Agropyron Smithii* Rydb.: Near Ensenada, Sept. 10, 1914, Standley & Bollman 11232. On *Elymus canadensis* L.: Pecos, Aug. 25, 1908, Standley 5319.

DIMEROSPORIUM COLLINSII (Schw.) Thüm.

On *Amelanchier oreophila* A. Nels.: Brazos Canyon, Aug. 21, 1914, Standley & Bollman 10681. On *Amelanchier polycarpa* Greene: Chama, July 9, 1911, Standley 6618.

ERYSIPHE CICHORACEARUM DC.

On *Lactuca integrata* (Gren. & Godr.) A. Nels.: Farmington, July 20, 1911, Standley 7150. (? Immature.) On *Heliopsis scabra* Dunal: Gilmore's Ranch, Aug. 15, 1897, Wooton. On *Madia glomerata* Hook.: Brazos Canyon, Aug. 31, 1914, Standley & Bollman 10972. On *Chrysanthemus linifolius* Greene (a new host): Shiprock, Aug. 12, 1911, Standley 7890. On *Chrysanthemus Vaseyi* (A. Gray) Greene (a new host): Stinking Lake, Aug. 21, 1911, Standley 8252. On *Aster vallicola* Greene (a new host): Santa Fe, July 23, 1908, Standley 4516. On *Erigeron subtrinervis* Rydb. (a new host): Brazos Canyon, Sept. 6, 1914, Standley & Bollman 11168. On *Iva xanthiifolia* Nutt.: Pecos, Aug. 20, 1908, Standley 5141. On *Artemisia dracunculoides* Pursh (a new host): Winsor's Ranch, Aug. 12, 1908, Standley 4894. On *Hydrophyllum Fendleri* (A. Gray) Heller (a new host): Winsor Creek, July 5, 1908, Standley 4199; Chama, July

9, 1911, Standley 6629; (? Conidia) Brazos Canyon, Sept. 8, 1914, Standley & Bollman 11200. On *Mertensia pratensis* Heller (a new host): Chama, July 9, 1911, Standley 6724. On *Mertensia* sp.: Brazos Canyon, Aug. 25, 1914, Standley & Bollman 10797. (?) On *Phacelia heterophylla* Pursh: Beatty's Cabin, Aug. 8, 1908, Standley 4855.

Reported by Cockerell from Pecos on *Verbena Macdougalii* Heller.

ERYSIPHE GALEOPSIDIS DC.

On *Stachys scopulorum* Greene (a new host): Pecos, Aug. 22, 1908, Standley 5196.

ERYSIPHE GRAMINIS DC.

On *Poa pratensis* L.: Pecos, Aug. 22, 1908, Standley 5173.

ERYSIPHE POLYGONI DC.

On *Polygonum buxiforme* Small (a new host): (? Conidia) Pecos, Aug. 19, 1908, Standley 5106; Agricultural College, June 28, 1911, Standley 6388; Placitas, Aug. 3, 1910, Wooton; Farmington, July 18, 1911, Standley 7061. On *Polygonum ramosissimum* Michx.: Pecos, Aug. 15, 1908, Standley 5003. On *Pisum sativum* L.: Pecos, Aug. 22, 1908, Standley 5182. On *Glycyrrhiza lepidota* Nutt.: Pecos, Aug. 20, 1908, Standley 5142. On *Lathyrus leucanthus* Rydb. (a new host): Brazos Canyon, Aug. 30, 1914, Standley & Bollman 10927.

ERYSIPHE sp.

On *Polemonium molle* Greene: Placitas, Aug. 3, 1910, Wooton. Regarding this collection Prof. Wilson furnished the following note. "While *E. Cichoracearum* would be expected as the most probable species on this host, the present collection does not belong to that species, but appears to be undescribed. As the ascospores are very immature it does not seem wise to describe the form as new without further material."

Besides the specimens of Erysiphaceae listed above, several packets examined by Prof. Wilson contained nothing but the

Oidium stage. These are listed here with Prof. Wilson's suggestions as to the possible perithecial form. Since the present knowledge of the Erysiphaceae is not sufficient to warrant specific determinations of the relationships of *Oidia*, and the perithecia might prove the suggestions incorrect, the present determinations are, of course, only tentative.

Erysiphe Polygoni?. On *Oenothera procera* Wooton & Standley: Ponchuelo Creek, July 28, 1908, Standley 4585. On *Pisum sativum* L.: White Mts., Aug. 15, 1908, Wooton.

Erysiphe Cichoracearum?. On *Grindelia aphanactis* Rydb.: Dulce, Aug. 19, 1911, Standley 8081. On *Verbena Macdougalii* Heller: Pecos, Aug. 22, 1908, Standley 5194.

Uncertain. On *Dugaldea Hoopesii* (A. Gray) Rydb.: Chama, July 10, 1911, Standley 6759. On *Humulus Lupulus neomexicanus* Nels. & Cockerell: Pecos, Aug. 25, 1908, Standley 5307. On *Ximenesia exauriculata* (Rob. & Greenm.) Rydb.: Mesilla Valley, Oct. 15, 1905, Wooton.

MICROSPAERA SYMPHORICARPI E. C. Howe

On *Symphoricarpos rotundifolius* A. Gray: Gilmore's Ranch, Aug. 14, 1897, Wooton.

OHLERIELLA NEOMEXICANA Earle

The type was collected by Cockerell, Nov. 29, 1901, on "old whitened woody stems," at Albuquerque.

PHYLLACHORA DASYLIRII Peck

Reported by Cockerell from Soledad Canyon, Organ Mts., on *Dasylirion Wheeleri* S. Wats.

PHYLLACHORA GRAMINIS (Pers.) Fuckel

On *Muhlenbergia neomexicana* Vasey: San Andreas Mts., Oct. 6, 1912, Wooton.

PHYLLACHORA TRIFOLII (Pers.) Fuckel

On *Trifolium repens* L.: Pecos, Aug. 25, 1908, Standley 5291. On *Trifolium Fendleri* Greene: Pecos, Aug. 19, 1908, Standley

5102. On *Trifolium Rydbergii* Greene: Costilla Valley, Sept. 5, 1913, Wooton.

PHYSALOSPORA AURANTIA Ellis & Ev.

On *Helianthus fascicularis* Greene: Pecos, Aug. 25, 1908, Standley. Determined by Sumstine.

PLOWRIGHTIA MORBOSA (Schw.) Sacc.

This is abundant on *Padus melanocarpa* (A. Nels.) Shafer, wherever that species grows. I do not remember having seen it on any of the other species of *Padus* but probably it occurs on them also.

PLOWRIGHTIA NEOMEXICANA Earle

The type was collected by Cockerell, July, 1902, between San Ignacio and Las Vegas, on dead, withered stems of "*Ampelopsis quinquefolia* (?)" (*Parthenocissus vitacea* (Knerr) Hitchc.).

PODOSPHAERA OXYCANTHAE (DC.) De Bary

On *Padus melanocarpa* (A. Nels.) Shafer: Placitas, Aug. 3, 1910, Wooton.

UNCINULA NECATOR (Schwein.) Burr.

Reported from New Mexico by Salmon (Mem. Torrey Club 9: 100. 1900).

UNCINULA POLYCHAETA (Berk. & Curt.) Ellis & Ev.

On *Celtis reticulata* Torr.: Filmore Canyon, Organ Mts., Sept. 20, 1908, Standley. Dr. Fairman states that this is a new host for this beautiful parasite. It is very common upon the hackberry trees in the Organ Mountains.

VENTURIA DICKIEI (B. & Br.) Ces. & De N.

On *Linnaea americana* Forbes: Horsethief Canyon, Pecos National Forest, Aug. 11, 1908, Standley 4884. Ellis and Everhart report this only from New Hampshire and New York. *Linnaea* is known in New Mexico only from the collection cited.

PEZIZALES

PEZIZA REGALIS C. & E.

Mesilla, on an apple tree (*Cockerell*). Determination by Earle.

PSEUDOPEZIZA MEDICAGINIS (Lib.) Sacc.

On *Medicago sativa* L.: Pecos, August, 1908, Standley 8056. Determined by Sumstine. Reported also from Roswell by Cockerell.

UREDINALES

AECIDIUM ABRONIAE Ellis & Ev.

On leaves of *Allionia melanotricha* Standley: White Mts., 1897, Wooton.

AECIDIUM ALLENII Clinton

On *Lepargyreya canadensis* (L.) Greene: Beulah, July, 1902, Cockerell.

Aecidium Cockerellii Arthur, sp. nov.

O. Pycnia unknown.

I. Aecia hypophyllous, in circular groups 1.5 mm. across, cupulate, round when free, ellipsoid when crowded sufficiently, 0.1 to 0.3 mm. in diameter; peridium pale, margin erect, erose; peridial cells rhomboidal, slightly longer than broad, 19–21 by 24–27 μ , overlapping somewhat, outer wall 7–10 μ thick, smooth, inner wall 1.5–2.5 μ thick, closely and finely verrucose; aeciospores angularly ellipsoid, oblong, or globoid, 15–18 by 18–23 μ ; wall pale yellow to colorless, 1.5 μ thick, occasionally thickened to 2 μ at angles, closely and very finely verrucose, appearing almost smooth when wet.

On Solanaceae: *Chamaesaracha Coronopus* (Dunal) A. Gray, near Las Vegas, New Mexico, 1899, T. D. A. Cockerell.

AECIDIUM COMPOSITARUM Auct.

On leaves of *Dugaldia Hoopesii* (A. Gray) Rydb.: Cloucroft, July 19, 1899, Wooton; Rio Pueblo, Aug. 11, 1910, Wooton; Winsor Creek, July 28, 1908, Standley 4581.

AECIDIUM EUPHORBIAE Am. Auct.

On *Tithymalus Chamaesula* (Boiss.) Woot. & Standl.: Pine Cienaga, southwest of the Mogollon Mts., July 17, 1900, *Wooton*. On leaves of *Tithymalus luridus* (Engelm.) Woot. & Standl.: Tunitcha Mts., Aug. 8, 1911, *Standley* 7639.

AECIDIUM EUROTIAE Ellis & Ev.

On *Eurotia lanata* (Pursh) Moq.: Organ, Sept. 28, 1896, *Cockerell* (*Arthur* in litt.).

AECIDIUM PHYSALIDIS Burr.

On leaves and stems of *Physalis comata* Rydb.: Sierra Grande, June 19, 1911, *Standley* 6201.

ARGOMYCES (?) OXALIDIS (Lév.) Arthur

On leaves of *Ionoxalis violacea* (L.) Small: Placitas, Aug. 3, 1910, *Wooton*.

CALLIOSPORA PETALOSTEMONIS Arthur

The type, on *Petalostemum oligophyllum* (Torr.) Rydb., was collected at Pecos in 1903 by Cockerell.

COLEOSPORIUM RIBICOLA (C. & E.) Arthur

On leaves of *Grossularia leptantha* (A. Gray) Cov. & Britt.: Placitas, Aug. 3, 1910, *Wooton*; Brazos Canyon, Aug. 27, 1914, *Standley & Bollman* 10864. On leaves of *Ribes Wolfii* Rothr.: Brazos Canyon, Aug. 26, 1914, *Standley & Bollman* 10833.

CRONARTIUM COLEOSPORIOIDES (Diet. & Holw.) Arthur

On leaves of *Castilleja linariaefolia* Benth.: Dulce, Aug. 19, 1911, *Standley* 8109; Tunitcha Mts., Aug. 8, 1911, *Standley* 7823. On *Castilleja integra* A. Gray: Tunitcha Mts., Aug. 8, 1911, *Standley* 7825. On leaves of *Castilleja confusa* Greene: Brazos Canyon, Aug. 31, 1914, *Standley & Bollman* 10984. On leaves and stems of *Castilleja sulphurescens* Rydb.: Brazos Canyon, Sept. 1, 1914, *Standley & Bollman* 11027.

CRONARTIUM COMANDRAE Peck

On leaves and stems of *Comandra pallida* A. DC.: Tunitcha Mts., Aug. 8, 1911, Standley 7764; Brazos Canyon, Sept. 10, 1914, Standley & Bollman 11239.

EARLEA SPECIOSA (Fries) Arthur

(*Phragmidium speciosum* Fries)

On *Rosa pecosensis* in New Mexico, according to Arthur (N. Am. Fl. 7: 176. 1912). Another New Mexican plant on which this occurs in Colorado is *Rosa Fendleri*.

ERIOSPORANGIUM PUNCTATO-STRIATUM (Diet. & Neger) Arthur

On *Baccharis glutinosa* Pers.: Mesilla, June 1897, Cockerell.

GYMNOSPORANGIUM GRACILENS (Peck) Kern & Beth.

I. On leaves of *Fendlera rupicola* Engelm. & Gray: Organ Mts., Sept. 28, 1902, Wooton. On leaves and fruit of *Fendlera falcata* Thornber: Tunitcha Mts., August, 1911, Standley. On *Philadelphus microphyllus* A. Gray: Rito de los Frijoles, August, 1912, Cockerell. On *Philadelphus ellipticus* Rydb. (= *P. argyrocalyx* Wooton) in New Mexico, according to Kern (N. Am. Fl. 7: 201. 1912).

III. On *Juniperus monosperma* (Engelm.) Sarg.: Near Placitas, June 29, 1908, Hedcock. On *Juniperus pachyphloea* Torr. in New Mexico, according to Kern (l. c.).

GYMNOSPORANGIUM INCONSPICUUM Kern

I. On *Amelanchier Bakeri* Greene: Bear Mountain, Sept. 1, 1903, Metcalf.

The telial stage is reported from Colorado upon *Juniperus utahensis*, a species common in northwestern New Mexico.

GYMNOSPORANGIUM JUVENESCENS Kern

I. On leaves of *Amelanchier mormonica* Schneid.: Dulce, Aug. 20, 1911, Standley 8205.

The telial stage occurs in Colorado on *Juniperus scopulorum* Sarg., a common New Mexican species.

GYMNOSPORANGIUM NELSONI Arthur

I. On leaves of *Amelanchier oreophila* A. Nels.: Brazos Canyon, Aug. 21, 1914, Standley & Bollman 10663.

III. On *Juniperus scopulorum* Sarg.: Brazos Canyon, Aug. 27, 1914, Standley & Bollman 10899. Reported from Colorado also upon *J. utahensis* and *J. monosperma*, common new Mexican species.

HYALOPSORA CHEILANTHIS (Peck) Arthur

On *Notholaena sinuata* Kaulf.: Dark Canyon, Guadalupe Mts., Aug. 5, 1909, Wooton. This species is known upon four other ferns, *Ceropteris triangularis*, *Cheilanthes Pringlei*, *Cryptogamme Stelleri*, and *Pellaea andromedaefolia*, none of which occurs in New Mexico. Apparently it has not been reported before upon a *Notholaena*.

MELAMPSORA ALBERTENSIS Arthur

On leaves of *Populus aurea* Tidestrom: Brazos Canyon, Aug. 20, 1914, Standley & Bollman 10627. Reported by Arthur in the *North American Flora* only from Alberta.

MELAMPSORA ARCTICA Rostr.

On leaves of *Salix Bebbiana* Sarg.: Brazos Canyon, Aug. 20, 1914, Standley & Bollman 10630, 10631; a new host. On *Salix Wrightii* Anderss.: Mesquite, Aug. 15, 1914, W. A. Archer.

MELAMPSORA BIGELOVII Thüm.

On leaves of *Salix amygdaloides* Anderss.: Shiprock, Aug. 11, 1911, Standley 7866. On leaves of *Salix Wrightii* Anderss.: Mesilla Valley, Nov. 15, 1903, Wooton; a new host. On leaves of *Salix Bebbiana* Sarg.: Pecos, August, 1908, Standley; Ponchuelo Creek, July 30, 1908, Standley 4590. On leaves of *Salix* spp.: Tunitcha Mts., Aug. 8, 1911, Standley 7713; Farmington, July 22, 1911, Standley 7161. Reported by Arthur from other

states upon *Salix exigua*, *S. Fendleriana*, *S. irrorata*, *S. lasiandra*, *S. nigra*, *S. petrophila*, and *S. Watsoni*, all of which occur in New Mexico.

MELAMPSORA LINI (Schum.) Desmaz.

On leaves of *Linum Lewisii* Pursh: Chama, July 13, 1911, Standley 6830.

MELAMPSORA MEDUSAE Thüm.

On *Populus Wislizeni* (S. Wats.) Sarg.: Agricultural College, Sept. 22, 1914, *W. A. Archer*.

MELAMPSORELLA ELATINA (Alb. & Schw.) Arthur

Reported by Hedgcock as occurring in New Mexico (*Mycologia* 4: 145. 1912).

MELAMPSOROPSIS PYROLAE (DC.) Arthur

On leaves of *Pyrola asarifolia* Michx.: Winsor Creek, June 29, 1908, Standley 4028. On leaves of *Pyrola secunda* L.: Winsor Creek, June 29, 1908, Standley 4029; Brazos Canyon, Aug. 31, 1914, Standley & Bollman 10976. Reported upon *Moneses uniflora*, *Pyrola chlorantha*, and *P. elliptica*, all of which are found in New Mexico.

NYSSOPSORA ECHINATA (Lév.) Arthur

On *Ligusticum Porteri* Coulter. & Rose: Sandia Mts., August, 1903, *Hedgcock* 107.

PERIDERMIUM COLORADENSE (Diet.) Arthur & Kern

On leaves of *Picea Parryana* (Andr.) A. Gray: Winsor Creek, July 28, 1908, Standley 4751; Rio Pueblo, Aug. 10, 1910, *Wooton*.

PERIDERMIUM EPHEDRAE Cooke⁶

On stems of *Ephedra trifurca* Torr.: Mesa west of Organ Mts., Sept. 28, 1902, *Wooton* 3716; mesa near Las Cruces, July 5, 1897,

⁶ See Paul C. Standley, A witch's broom of the desert, *Plant World* 13: 61-63. 1909.

Wooton 542. On stems of *Ephedra Torreyana* S. Wats.: Buchanan, Aug. 12, 1909, *Wooton*. This rust is extremely common upon *Ephedra trifurca* in southern New Mexico. Because of its large size and bright orange color it is very conspicuous. Dr. Arthur states that no clue to the telial host has yet been obtained.

PHRAGMIDIUM IMITANS Arthur

On leaves of *Rubus arizonicus* (Greene) Rydb.: Cloudcroft, Aug. 8, 1899, *Wooton*; Brazos Canyon, Aug. 31, 1914, *Standley & Bollman* 10999.

PHRAGMIDIUM MONTIVAGUM Arthur

On leaves of *Rosa Fendleri* Crép.: Pecos National Forest, 1908, *Standley*. On leaves of *Rosa* sp.: Brazos Canyon, Aug. 20, 1914, *Standley & Bollman* 10638. To be expected in New Mexico on *Rosa Maximiliani*, upon which it has been found in Colorado.

PHRAGMIDIUM OCCIDENTALE Arthur

On leaves of *Rubacer parviflorum* (Nutt.) Rydb.: Winsor's Ranch, July 4, 1908, *Standley* 4178; Carrizo Mts., August, 1911, *Standley* 7738a.

PHRAGMIDIUM PECKIANUM Arthur

On leaves of *Oreobatus deliciosus* (James) Rydb.: Sierra Grande, June 19, 1911, *Standley* 6203. This is the only New Mexican locality known for this *Oreobatus*. *Phragmidium Peckianum* is reported by Arthur from New Mexico also upon *Oreobatus neomexicanus* (A. Gray) Rydb. (N. Am. Fl. 7: 165. 1912).

PHRAGMIDIUM POTENTILLAE (Pers.) Karst.

On leaves of *Potentilla strigosa* Pall.: Ensenada, Sept. 10, 1914, *Standley & Bollman* 11227. The species is reported (from Maine) upon *Potentilla monspeliensis*, a species common in New Mexico.

PILEOLARIA PATZCUARENSE (Holway) Arthur

On *Schmaltzia Emoryi* Greene in New Mexico according to Arthur (N. Am. Fl. 7: 149. 1912). The only other locality known for the species is in Michoacán, Mexico, where it occurs upon *S. schmidelioides* (Schlecht.) Greene.

POLYTHELIS THALICTRI (Chev.) Arthur

On leaves of *Thalictrum Fendleri* Engelm.: Tunitcha Mts., Aug. 8, 1911, Standley 7744; Chama, July 13, 1911, Standley 6826.

PUCCINIA ABSINTHII DC.

On *Artemisia redolens* A. Gray: Cloudcroft, Sept. 17, 1903, E. W. D. Holway (Bartholomew 767). On leaves and stems of *Artemisia silvicola* Osterh.: Brazos Canyon, Aug. 27, 1914, Standley & Bollman 10844.

PUCCINIA ARISTIDAE Tracy

On leaves of *Aristida bromoides* H. B. K.: San Andreas Mts., Oct. 8, 1914, Wooton.

PUCCINIA ARTEMISIAE DC.

On leaves and stems of *Artemisia tridentata* Nutt.: Dulce, Aug. 19, 1911, Standley 8065; Cedar Hill, Aug. 15, 1911, Standley 7903. On leaves of *Artemisia nova* A. Nels.: Dulce, Aug. 19, 1911, Standley 8100. On leaves of *Artemisia cana* Pursh: Dulce, Aug. 19, 1911, Standley 8083.

PUCCINIA ASPARAGI DC.

III. On *Asparagus officinalis* L.: Mesilla, Dec. 28, 1915, W. A. Archer 20.

PUCCINIA ATRO-FUSCA (Dudley) Holway

On leaves of *Carex Douglasii* Boott: Winsor's Ranch, June 20, 1908, Standley 4095.

PUCCINIA CANALICULATA (Schw.) Lagerh.

On leaves of *Cyperus esculentus* L.: Mesilla Valley, Oct. 11, 1904, Wooton.

PUCCINIA CIRSI

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On leaves of *Cirsium pallidum* Woot. & Standl.: Brazos Canyon, Sept. 2, 1914, Standley & Bollman 11057. On *Cirsium undulatum* (Nutt.) Spreng.: Sandia Mts., June 2, 1914, Miss C. C. Ellis. On leaves of *Cirsium Wrightii* A. Gray (?): Cloudcroft, Sept. 16, 1903, E. W. D. Holway (Bartholomew, N. Am. Ured. 131) (II, III).

PUCCINIA CLEMATIDIS (DC.) Lagerh.

[*Puccinia Delphinii* Diet. & Holw.; *Puccinia Agropyri* Ellis & Ev.; *Puccinia alternans* Arthur; *Puccinia oblitterata* Arthur.]

I. On leaves, stems, and sepals of *Clematis ligusticifolia* Nutt.: Fresnal, Aug. 6, 1899, Wooton; Pecos, Aug. 25, 1908, Standley; Placitas, Aug. 3, 1910, Wooton; Tunitcha Mts., Aug. 8, 1911, Standley 7770; Farmington, July 17, 1911, Standley 6893. On leaves of *Thalictrum Fendleri* Engelm.: Winsor's Ranch, June 29, 1908, Standley 4007; Chama, July 13, 1911, Standley 6829; Beulah, July 10, 1902, Cockerell. On *Halerpestes Cymbalaria* (Pursh) Greene: Las Vegas, June 7, 1902, Cockerell 45. On *Aquilegia caerulea* James: Beulah, June 29, 1909, W. P. Cockerell.

On leaves of *Elymus canadensis* L.: Agricultural College, June 28, 1911, Standley 6383. On *Delphinium Sapellonis* Cockerell: Sapello Canyon, Cockerell.

PUCCINIA CRESSAE (DC.) Lagerh.

On leaves of *Cressa truxillensis* H. B. K.: Mesilla Valley, Sept. 25, 1907, Standley; June, 1896, Wooton.

PUCCINIA CRYPTANDRI Ellis & Barth.

On *Sporobolus cryptandrus* (Torr.) A. Gray: Mesilla, Oct. 7, 1915, W. A. Archer 6; Las Vegas Hot Springs (Cockerell).

PUCCINIA ELLISIANA Thüm.

I. On leaves of *Viola pedatifida* Don: Sierra Grande, June 20, 1911, Standley 6226.

PUCCINIA EPILOBII-TETRAGONI (DC.) Wint.

On stems of *Epilobium adenocladon* (Hausskn.) Rydb.: Brazos Canyon, Sept. 2, 1914, Standley & Bollman 11055.

PUCCINIA EXTENSICOLA Plowr.

[*P. Caricis-Asteris* Arthur; *P. Caricis-Solidaginis* Arthur.]

I. On leaves of *Solidago Pitcheri* Nutt.: Winter Folly, Aug. 13, 1899, Wooton. On leaves of *Aster laevis* L.: Winsor's Ranch, July 4, 1908, Standley 4180; Chama, July 14, 1911, Standley 6838.

PUCCINIA GAYOPHYTI (Billings) Peck

On stems of *Gayophytum ramosissimum* Torr. & Gray: Dulce, Aug. 19, 1911, Standley 8073.

PUCCINIA GRINDELIAE Peck

On stems and involucral bracts of *Gutierrezia tenuis* Greene: Mesa west of Organ Mts., September, 1908, Wooton & Standley 3863. On stems and leaves of *Gutierrezia* sp.: Cactus Flat, July 5, 1906, Wooton. On *Grindelia* sp.: Santa Fe, 1898, Cockerell. On leaves of *Grindelia aphanactis* Rydb.: Nara Visa, Oct. 2, 1907, W. Belknap; Santa Fe, Oct. 1, 1907, A. Boyle. On leaves of *Grindelia subalpina* Greene: Raton, June 22, 1911, Standley 6327.

PUCCINIA GROSSULARIAE (Pers.) Lagerh.

I. On leaves of *Grossularia leptantha* (A. Gray) Cov. & Britt.: Chama, July 9, 1911, Standley 6644; Winsor's Ranch, July 3, 1908, Standley 4168.

PUCCINIA HELIANTHI Schw.

On leaves of *Helianthus annuus* L.: Mesilla Valley, August, and Sept. 4, 1908, Standley; Agricultural College, June 28, 1911,

Standley 6392; Tunitcha Mts., Aug. 8, 1911, *Standley* 7790; Farmington, July 22, 1911, *Standley* 7175. On *Helianthus ciliaris* DC.: Mesilla, Cockerell; Mesilla Park, May 9, 1915, *W. A. Archer* (I); Las Cruces, Oct. 27, 1892, *Wooton*; Albuquerque, December, 1914, *W. A. Long* 5183; Brazito, June 15, 1915, *Archer* (I, II, III).

PUCCINIA HEMISPHERICA Peck

On leaves and stems of *Lactuca pulchella* (Pursh) DC.: Raton, June 21, 1911, *Standley* 6301 (O, I); Cedar Hill, Aug. 17, 1911, *Standley* 8057 (III).

PUCCINIA INTERMIXTA Peck

I. On leaves of *Iva axillaris* Pursh: Las Vegas, June 2, 1900, *T. A. Williams*.

PUCCINIA JAMESIANA (Peck) Arthur

On *Asclepias galloides* H. B. K.: Gray, July, 1900, *Skehan*. On leaves of *Asclepias brachystephana* Engelm. (I): Redlands, Aug. 17, 1909, *Wooton*. On leaves of *Asclepias latifolia* (Torr.) Raf. (I): Redlands, Aug. 17, 1909, *Wooton*. On *Bouteloua curtipendula* (Michx.) Torr.: Filmore Canyon, Organ Mts., Sept. 20, 1908, *Standley*. Reported (as *Aecidium Brandegei* Peck) from Las Vegas, on "*Asclepias subverticillata* (A. Gray) Vail" (apparently *A. galloides* H. B. K.) by Johnson (Proc. Ind. Acad. Sci. 1911: 399. 1912).

PUCCINIA KOELERIAE Arthur

I. (*Aecidium Fendleri* Tracy & Earle). On leaves of *Berberis Fendleri* A. Gray: Winsor's Ranch, June 30, 1908, *Standley* 4078.

PUCCINIA LOBATA Berk. & Curt.

On *Disella lepidota* (A. Gray) Greene: San Andreas Mts., Sept. 23, 1912, *Wooton*. On leaves of *Disella hederacea* (Dougl.) Greene: Mesilla Valley, Oct. 15, 1901, Oct. 29, 1903, *Wooton*. On leaves of cultivated hollyhocks (*Althaea rosea* L.): Mesilla

Valley, Sept. 15, 1899, Oct. 1, 1904, *Wooton*; Pecos, Aug. 26, 1908, *Standley* 5324.

PUCCINIA LUXURIANS Syd.

On *Sporobolus airoides* Torr.: Brazito, Sept. 1, 1915, *W. A. Archer* 13.

PUCCINIA MENTHAE Pers.

On leaves of *Mentha Penardi* (Briq.) Rydb.: Brazos Canyon, Sept. 3, 1914, *Standley & Bollman* 11119. On leaves of *Monarda stricta* Wooton: Brazos Canyon, Aug. 27, 1914, *Standley & Bollman* 10884. Reported by Cockerell from Pecos on the latter host.

PUCCINIA MONOICA (Peck) Arthur

I. On *Arabis Fendleri* (S. Wats.) Greene: Santa Fe, May, 1897, *Heller*. On leaves of *Arabis oxyphylla* Greene: Grass Mt., July 16, 1908, *Standley* 4368. On "Draba aurea": Coolidge, June 20, 1887, *Tracy & Evans*. Reported by Cockerell from Las Vegas, on *Sophia incisa* (Engelm.) Greene.

PUCCINIA MONTANENSIS Ellis

[*Aecidium Hydrophylli* Peck; *Aecidium Phaceliae* Peck.]

On some unidentified grass: Albuquerque, Nov. 1, 1914, *W. H. Long*. On leaves of *Hydrophyllum Fendleri* (A. Gray) Heller (I): Winsor's Ranch, July 1, 1908, *Standley* 4128; Beulah, Cockerell. On leaves of *Phacelia heterophylla* Pursh (I): Winsor Creek, Aug. 4, 1908, *Standley* 4749; Chama, July 9, 1911, *Standley* 6619; Beulah, Cockerell. On *Koeleria cristata* (L.) Pers.: Organ Mts., Feb. 22, 1914, *Arthur & Fromme* 5605.

PUCCINIA MUHLENBERGIAE Arth. & Holw.

(*Aecidium Sphaeralceae* Ellis & Ev.; *Puccinia tosta* Arthur.)

On leaves of *Muhlenbergia repens* (Presl) Hitchc. (*Sporobolus utilis* (Torr.) Scribn.): Mesilla Valley, Oct. 15, 1903, *Wooton* 3731. On leaves of *Sporobolus asperifolius* (Nees & Mey.) Thurb.: Mesilla Park, Feb. 19, 1914, *Arthur & Fromme* 5504,

5055; Agricultural College, June 28, 1911, Standley 6382; Albuquerque, December, 1914, W. H. Long 5181. On leaves of *Sphaeralcea lobata* Wooton: Agricultural College, June 28, 1911, Standley 6393; Mesilla, June 19, 1897, Wooton; Pecos, Aug. 22, 1908, Standley 5185. On *Disella hederacea* (Dougl.) Greene (*Sida hederacea* (Dougl.) Torr.): Hatch, June 22, 1914, W. A. Archer; Mesilla Park, July 13, 1914, W. A. Archer. On *Muhlenbergia squarrosa* (Trin.) Rydb.: Las Vegas, Oct. 5, 1901, Cockrell.

The type of *Aecidium Sphaeralceae* was collected at Las Cruces on " *Sphaeralcea angustifolia* Don" (*S. lobata* Wooton).

PUCCINIA OBTECTA Peck

On *Scirpus americanus* Pers.: Mesilla, Oct. 5, 1915, W. A. Archer 11.

PUCCINIA PHILIBERTIAE Ellis & Ev.

The type was collected "on leaves and follicles of *Philibertia viriflora?* Britton and Rusby," near Las Cruces, Wooton 43.

PUCCINIA POCULIFORMIS (Jacq.) Wettst.

[*P. graminis* Pers.]

On leaves of *Triticum vulgare* L.: Pecos, Aug. 22, 1908, Standley 5178. On leaves of *Avena fatua* L.: Pecos, Aug. 22, 1908, Standley 5180. On leaves of *Hordeum jubatum* L.: Pecos, Aug. 25, 1908, Standley 5312. On leaves of *Agropyron Smithii* Rydb.: Dulce, Aug. 19, 1911, Standley 8079.

PUCCINIA PSEUDOCYMOPTERI Holway

On leaves and stems of *Pseudocymopterus montanus* (A. Gray) Coulter & Rose: Chama, July 10, 1911, Standley 6774; Dulce, Aug. 20, 1911, Standley 8169; Brazos Canyon, Sept. 1, 1914, Standley & Bollman 11011.

PUCCINIA PUNCTATA Link

On *Galium asperrimum* A. Gray: Cloudcroft, Sept. 16, 1903, E. W. D. Holway (*Syd. Ured.* 2037) (Arthur in litt.).

PUCCINIA SHERARDIANA Körn.

On leaves of *Malvastrum elatum* (Baker) A. Nels.: Pecos, Aug. 15, 1908, Standley 4963.

PUCCINIA SORGHI Schw.

On leaves of cultivated maize (a Mexican variety): Pecos, Aug. 25, 1908, Standley 5286.

PUCCINIA SPHAERALCEAE Ellis & Ev.

On *Sphaeralcea arenaria* Woot. & Standl.: San Andreas Mts., Oct. 10, 1914, Wooton. On *Sphaeralcea incana* Torr.: Organ Mts., Feb. 22, 1914, Arthur & Fromme 5608, 5609. On leaves and stems of *Sphaeralcea marginata* York: Farmington, July 18, 1911, Standley 7018. On leaves of *Sphaeralcea lobata* Wooton: Pecos, Aug. 22, 1908, Standley 5184. On leaves and stems of *Sphaeralcea Fendleri* A. Gray: Cedar Hill, Aug. 17, 1911, Standley 8046; Dulce, Aug. 20, 1911, Standley 8164. On *Disella hederacea* (Dougl.) Greene (*Sida hederacea* (Dougl.) Torr.): Agricultural College, October, 1915, W. A. Archer 22.

PUCCINIA SPLENDENS Vize.

On leaves and stems of *Hymenoclea monogyra* Torr. & Gray: Mesa west of Organ Mts., Oct. 6, 1904, Wooton 3793. The fungus is very abundant upon this shrub in southern New Mexico, forming great knots upon the branches suggestive of the black knot of plums and cherries.

PUCCINIA STIPAE Arthur

I. On leaves of *Solidago Pitcheri* Nutt.: Gilmore's Ranch, Aug. 17, 1908, Wooton.

PUCCINIA SUBNITENS Dietel

On *Salsola pestifer* A. Nels.: Mesilla Park, April 25, 1915, W. A. Archer. On leaves of *Sophia incisa* (Engelm.) Greene (I): James Canyon, June 26, 1899, Wooton. On *Chenopodium album* L.: Mesilla Park, April 25, 1915, W. A. Archer (I). On

Chenopodium pratericola Rydb. (I) : Mesilla Park, April 25, 1915, *Archer*. On young plant of *Chenopodium Fremontii* S. Wats. (I) : Mesilla Park, April 26, 1915, *Archer*. On leaves of *Distichlis spicata* (L.) Greene: Mesilla Park, Feb. 19, 1914, *Arthur & Fromme* 5502; Albuquerque, Nov. 9, 1914, *W. H. Long* 3672; Mesquite Lake, June 14, 1908, *Standley* 3932; San Antonio, Oct. 15, 1907, *J. D. Tinsley*; Farmington, July 17, 1911, *Standley* 6898. Reported (as *Aecidium Lepidii* Tr. & Gall.) by Cockerell (*Jour. Myc.* 10: 51. 1904) from Hagerman, on *Lepidium alysoides* A. Gray.

PUCCINIA TARAXACI Plow.

On leaves of *Taraxacum Taraxacum* (L.) Karst.: Chama, July 9, 1911, *Standley* 6697.

PUCCINIA TUBERCULANS Ellis & Ev.

On leaves of *Isocoma heterophylla* (A. Gray) Greene: Mesilla Valley, Oct. 4, 1899, *Wooton*.

PUCCINIA TUMIDIPES Peck

On leaves of *Lycium pallidum* Miers: Farmington, July 19, 1911, *Standley* 7071; Carrizo Mts., July 30, 1911, *Standley* 7449.

PUCCINIA UNIVERSALIS Arthur

I. On leaves of *Artemisia franserioides* Greene: Beatty's Cabin, Aug. 8, 1908, *Standley* 4840.

PUCCINIA VERATRI Clinton

On leaves of *Veratum speciosum* Rydb.: Brazos Canyon, Aug. 31, 1914, *Standley & Bollman* 10946. Reported by Cockerell from Beulah.

PUCCINIA VIOLAE (Schum.) DC.

On leaves of *Viola canadensis* L.: Cloudcroft, Aug. 8, 1899, *Wooton*. On leaves of *Viola nephrophylla* Greene: Brazos Canyon, Aug. 21, 1914, *Standley & Bollman* 10651.

PUCCINIA XANTHII Schw.

On leaves of *Xanthium commune* Britton: Mesilla Valley, Oct. 13, 1898, *Wooton*; Farmington, July 19, 1911, *Standley* 7076; Carrizo Mts., Aug. 1, 1911, *Standley* 7492. Reported by Cockrell from Roswell.

PUCCINIASTRUM AGRIMONIAE (Schw.) Tranz.

On *Agrimonia striata* Michx.: [Las Vegas?] Hot Springs, Sept. 15, 1896, *Holway*.

PUCCINIASTRUM MYRTILLI (Schum.) Arthur

On leaves of *Vaccinium oreophilum* Rydb.: Brazos Canyon, Sept. 8, 1914, *Standley & Bollman* 11199.

PUCCINIASTRUM PUSTULATUM (Pers.) Dietel

On *Chamaenerion angustifolium* (L.) Scop.: Brazos Canyon, Aug. 20, 1914, *Standley & Bollman* 10635. On leaves and stems of *Eptilobium novomexicanum* Hausskn.: Farmington, July 18, 1911, *Standley* 7045; Brazos Canyon, Aug. 31, 1914, *Standley & Bollman* 10947.

RAVENELIA MESILLIANA Ellis & Barth.

The type was collected at Mesilla, New Mexico, on *Cassia bauhinoides* A. Gray. The species is known only from this locality.

RAVENELIA VERSATILIS (Peck) Dietel

On *Acacia Greggii* A. Gray: Rio Gila, Aug. 15, 1902, *Wooton* 3743. The species is confined, so far as known, to this host and occurs also in Texas, Arizona, and California.

TRANZSCHELIA PUNCTATA (Pers.) Arthur

[*Puccinia Pruni-spinosae* Pers.]

On cultivated apricots: Mesilla Valley, June, 1908, *Wooton*.

UREDINOPSIS PTERIDIS Diet. & Holw.

On *Pteridium aquilinum pubescens* Underw.: Brazos Canyon, Aug. 21, 1914, Standley & Bollman 10692. Arthur, in the North American Flora, reports the species from California, Washington, and Florida.

UROMYCES ALBUS Diet. & Holw.

I. On leaves of *Vicia americana* Muhl.: Sierra Grande, June 20, 1911, Standley 6219; Winsor's Ranch, July 8, 1908, Standley 4256; Chama, July 13, 1911, Standley 6825.

UROMYCES APPENDICULATUS (Pers.) Fries

On leaves and fruit of *Phaseolus vulgaris* L. (cultivated): Mesilla Valley, Oct. 10, 1905, Wooton. Reported by Arthur (N. Am. Fl. 7: 258. 1912) from New Mexico on *Strophostyles* sp.

UROMYCES ARCHERIANUS Arthur & Fromme

III. On *Chloris elegans* H. B. K.: Mesilla Park, March 22, 1915, W. A. Archer.

UROMYCES ASTRAGALI Sacc.

On *Astragalus Wootoni* Sheldon: Mesquite Lake, June 14, 1908, Standley 3931; Range Reserve, Dona Ana Co., May 14, 1913, Wooton. On *Astragalus* sp.: Las Vegas, June 2, 1900, T. A. Williams. Reported by Arthur from Colorado or Arizona on the following hosts, all of which are found in New Mexico: *Oxytropis Lamberti*, *Astragalus amphioxys*, *A. Bigelowii*, *A. crassicarpus*, *A. mollissimus*, and *A. Thurberi*.

UROMYCES COMPACTUS Peck

On *Leucosyris spinosus* (Benth.) Greene: Brazito, Sept. 1, 1915, W. A. Archer 3 (I); Brazito, October, 1915, Archer 24 (III).

UROMYCES ERIOGONI Ellis & Hark.

On leaves of *Eriogonum racemosum* Nutt.: Tunitcha Mts., Aug. 8, 1911, Standley 7757; Dulce, Aug. 20, 1911, Standley 8221; Chama, July 11, 1911, Standley 6814. Reported by Arthur from other states on the following species which occur in New Mexico: *Eriogonum cernuum*, *E. effusum*, and *E. lonchophyllum*.

UROMYCES FABAE (Pers.) De Bary

On leaves of *Lathyrus leucanthus* Rydb.: Dulce, Aug. 20, 1911, Standley 8170; Brazos Canyon, Aug. 20, 1914, Standley & Bollman 10636. On leaves and stems of *Vicia americana* Muhl.: Dulce, Aug. 20, 1911, Standley 8182; Brazos Canyon, August, 1914, Standley & Bollman 10667, 10986. The species may be looked for in New Mexico on the following hosts upon which it occurs elsewhere: *Lathyrus arizonicus* and *L. decaphyllus*.

UROMYCES GENTIANAE Arthur

On all chlorophyll-bearing parts of *Amarella heterosepala* (Engelm.) Greene: Brazos Canyon, Sept. 3, 1914, Standley & Bollman 11089. The species is reported from Colorado on *Amarella strictiflora* and may be expected in New Mexico on the same host.

UROMYCES GLYCRRHIZAE (Rab.) Magn.

On leaves and stems of *Glycyrrhiza lepidota* Nutt.: Mesilla Valley, Wooton; Agricultural College, June 28, 1911, Standley 6398; Pecos, Aug. 15, 1908, Standley 4964; Cedar Hill, Aug. 16, 1911, Standley 8009; Taos, Aug. 9, 1910, Wooton.

UROMYCES HYALINUS Peck

On leaves and stems of *Sophora sericea* Nutt.: Mesilla Valley, June 12, 1900, Wooton 3725; Mesilla Park, May 31, 1914, W. A. Archer. Reported from Las Vegas by Cockerell.

UROMYCES LIMONII (DC.) Lév.

I. On *Limonium limbatum* Small: Roswell, June, 1899, *J. D. Tinsley*; south of Tularosa (*Cockerell*). In the North American Flora this is not reported from the region between California and Mississippi.

UROMYCES MEDICAGINIS Pass.

On leaves of *Medicago sativa* L.: Chamberino, Oct. 16, 1907, *J. H. Bruce*. The species should be found in New Mexico on *Medicago lupulina*, since it occurs elsewhere on that host.

UROMYCES MYSTICUS Arthur

On leaves of *Hordeum jubatum* L.: Farmington, July 22, 1911, *Standley 7172* (II); Shiprock, Aug. 12, 1911, *Standley 7884*. Reported in the North American Flora only from Colorado and Utah.

UROMYCES OCCIDENTALIS Dietel

On leaves of *Lupinus ammophilus* Greene: Dulce, Aug. 20, 1911, *Standley 8234*; a new host. On leaves of *Lupinus Kingii* S. Wats.: G O S Ranch, 1911, *J. M. Holzinger*.

UROMYCES PLUMBARIUS Peck

On all chlorophyll-bearing parts of *Gaura induta* Woot. & Standl.: Pecos, Aug. 22, 1908, *Standley 5176*; Dulce, Aug. 19, 1911, *Standley 8102*; Farmington, July 22, 1911, *Standley 7173*. This species is reported from Colorado upon *Gaura glabra* Lehm., but the host is probably rather *Gaura induta*. *Uromyces plumbarius* occurs in other states upon *Gaura coccinea*, *G. parviflora*, *G. villosa*, *Pachylophus hirsutus*, and *P. macroglossis*, and should be sought in New Mexico upon the same hosts. It may be expected to occur also upon some of our Oenotheras, for it is found elsewhere on *O. biennis*.

UROMYCES PROEMINENS (DC.) Pass.

On leaves of *Chamaesyce serpyllifolia* (Pers.) Small: Farmington, July 22, 1911, *Standley 7160*; Cedar Hill, Aug. 16, 1911,

Standley 8014 (III). Silver City Draw, July 1, 1906, *Wooton* 3720. On leaves of *Chamaesyce glyptosperma* (Engelm.) Small: Dulce, Aug. 20, 1911, *Standley 8163*. On *Chamaesyce stictospora* (Engelm.) Small: San Andreas Mts., Oct. 6, 1912, *Wooton*; a new host. On leaves of *Zygophyllidium bilobatum* (Engelm.) Standley: Santa Rita, Aug. 1, 1911, *J. M. Holzinger*; a new host. To be expected in New Mexico upon the following hosts upon which it is reported elsewhere: *Chamaesyce albomarginata*, *C. Fendleri*, *C. Geyeri*, *C. lata*, *C. petaloidea*, *C. serpens*, *Dichrophylum marginatum*, and *Poinsettia dentata*.

UROMYCES PSORALEAE Peck

On leaves and stems of *Psoralea micrantha* A. Gray: Dulce, Aug. 19, 1911, *Standley 8069*.

UROMYCES RUDBECKIAE A. & H.

On leaves of *Rudbeckia laciniata* L.: Brazos Canyon, Aug. 25, 1914, *Standley & Bollman 10818*.

UROMYCES SILPHII (Burrill) Arthur

On *Juncus longistylis* Torr.: Costilla Valley, Sept. 6, 1913, *Wooton*. On *Juncus interior* Wiegand: McKinney's Park, Socorro Co., Aug. 23, 1903, *Metcalfe*.

UROMYCES SPECIOSUS Holway

The type was collected by Holway at Cloudcroft, New Mexico, on "*Frasera macrophylla*." Examination of a portion of the type collection forwarded to the writer by Dr. Arthur shows that the host is *Frasera speciosa* Dougl.

UROMYCES TRANZSCHELII Syd.

On leaves of *Tithymalus* sp.: Near Fairview, July 18, 1904, *Wooton*.

UROPYXIS AMORPHAE (M. A. Curt.) Schröt.

On *Amorpha nana* Nutt.: [Las Vegas?] Hot Springs, Sept. 13, 1896, *E. W. D. Holway (Bartholomew 772)*. On *Amorpha cali-*

fornica Nutt.: Las Cruces, Oct. 27, 1892, *Wooton*; west of Roswell, Aug. 30, 1900, *Earle* 377. The species occurs elsewhere on *Amorpha canescens* and may occur in New Mexico on that host.

UROPYXIS PETALOSTEMONIS (Farl.) De Toni

II. On stems and leaves of *Petalostemum oligophyllum* (Torr.) Rydb.: Pecos, Aug. 15, 1908, *Standley* 4960. To be expected in New Mexico upon *P. purpureum*, since it is reported from other states upon that host.

UROPYXIS SANGUINEA (Peck) Arthur

On leaves of *Odostemon repens* (Lindl.) Cockerell: Chama, July 10, 1911, *Standley* 6767; Winsor's Ranch, June 30, 1908, *Standley* 4085; Dulce, Aug. 20, 1911, *Standley* 8181; Brazos Canyon, Aug. 30, 1914, *Standley & Bollman* 10937.

UROPYXIS WOOTONIANA Arthur

II, III. On leaves of *Odostemon haematocarpus* (Wooton) Heller: Organ Mts., Dec. 23, 1903, *Wooton* (type); Filmore Canyon, Organ Mts., Nov. 9, 1908, *Wooton*; Queen, Aug. 1, 1909, *Wooton*. The species might well be expected on a closely related species occurring in New Mexico, *Odostemon Fremontii*.

USTILAGINALES

(Determined by Dr. G. P. Clinton, unless otherwise noted)

CINTRACTIA CARICIS (Pers.) Magn.

On *Carex* sp.: Winsor's Ranch, July 3, 1908, *Standley* 4161; Chama, July 10, 1911, *Standley* 6778.

ENTYLOMA AUSTRALE Speg.

On *Physalis neomexicana* Rydb.: Pecos, Aug. 19, 1908, *Standley* 5100. Determined by Sumstine.

ENTYLOMA COMPOSITARUM Farl.

On *Bidens tenuisecta* A. Gray (a new host) : Pecos, Aug. 19, 1908, Standley 5097. Determined by Wilson.

SOROSPORIUM CONSANGUINEUM Ellis & Ev.

On *Aristida* sp.: Mesa west of the Organ Mts., Oct. 6, 1904, Wooton 3794. Dr. Clinton states that the spores are larger than in the type; consequently the determination is somewhat doubtful.

SOROSPORIUM CONTORTUM Griff.

On *Heteropogon contortus* (L.) Beauv.: Agricultural College, Oct. 5, 1904, Wooton; mesa west of Organ Mts., Oct. 15, 1904, Wooton 3791. Reported previously only from Arizona and from Jalisco, Mexico.

THECAPHORA DEFORMANS Dur. & Mont.

On *Astragalus Wootoni* Sheld.: Range Reserve, Dona Ana Co., May 14, 1913, Wooton; a new host. Reported from adjacent states upon *Astragalus bisulcatus*, *A. Drummondii*, *A. Nuttallianus*, and *A. missouriensis*, all of which occur in New Mexico.

TILLETTIA ASPERIFOLIA Ellis & Ev.

On *Sporobolus asperifolius* (Nees. & Mey.) Thurb.: Ojo Caliente, Zuni Reservation, July 28, 1904, Wooton.

TOLYSPORELLA (?) NOLINAE Clinton

On *Nolina microcarpa* S. Wats.: Near San Luis Pass, southwestern corner of New Mexico, June 21, 1906, Wooton. Reported previously only from the type locality, the Rincon Mts., Arizona.

UROCYSTIS AGROPYRI (Preuss) Schröt.

On *Elymus canadensis* L.: Ojo Caliente, Zuni Reservation, July 28, 1904, Wooton. Reported by Clinton (N. Am. Fl. 7: 58. 1906) from New Mexico on *Agropyron occidentale* (= *A. Smithii* Rydb.).

UROCYSTIS ANEMONES (Pers.) Wint.

Reported from New Mexico on *Pulsatilla hirsutissima* (Pursh) Britton by Clinton (N. Am. Fl. 7: 55. 1906).

USTILAGO AVENAE (Pers.) Jens.

On *Avena sativa* L.: Shiprock, Aug. 11, 1911, Standley 7870, in part; Ponchuelo Creek, July 30, 1908, Standley 4592.

USTILAGO BROMIVORA (Tul.) Fisch. de Waldh.

On *Bromus polyanthus* Scribn.: Pecos, Aug. 25, 1908, Standley 5317.

USTILAGO BUCHLOES Ell. & Tracy

The type (on *Bulbilis dactyloides*) was collected at Coolidge (now known as Guam), New Mexico. The species is reported also from Nebraska.

USTILAGO CALCARA Griff.

The type was collected at Roswell, New Mexico, May 4, 1903, on *Bouteloua breviseta* Vasey. The species is reported only from this state.

USTILAGO HIERONYMI Schröt.

On *Bouteloua eriopoda* Torr.: East of Dona Ana Mts., Sept. 6, 1908, Wooton; mesa west of Organ Mts., Oct. 25, 1904, Wooton. On *Bouteloua breviseta* Vasey: Roswell, according to Griffiths (Bull. Torrey Club 31: 87. 1903; Clinton, N. Am. Fl. 7: 13, 1906). Also reported by Clinton (l. c.) from New Mexico on *Bouteloua oligostachya* (= *B. gracilis* (H. B. K.) Lag.). The species occurs in adjacent regions on *Bouteloua curtipendula* (Michx.) Torr., *B. aristidoides* (H. B. K.) Griseb., *B. barbata* Lag., *Dasyochloa pulchella* (H. B. K.) Willd., and *Pappophorum Wrightii* Munro, all of which are found in New Mexico.

USTILAGO HILARIAE Ellis & Tracy

On *Hilaria mutica* (Buckl.) Benth.: East of Dona Ana Mts., Sept. 6, 1908, *Wooton*. The type was collected at Albuquerque, New Mexico, on *Hilaria Jamesii* (Torr.) Benth.

USTILAGO HORDEI (Pers.) Kellerm. & Swingle.

On cultivated barley: Mora, Aug. 11, 1910, *Wooton*.

USTILAGO HYPODYTES (Schlecht.) Fries

On *Stipa Vaseyi* Scribn.: Pecos, Aug. 22, 1908, *Standley* 5189; Raton Mts. (Griffiths, Bull. Torrey Club 31: 86. 1903). On *Distichlis spicata* (L.) Greene; Roswell (Griffiths, op. cit. 87. 1903). Reported from adjacent states on *Oryzopsis hymenoides* (R. & S.) Ricker and *Sporobolus cryptandrus* (Torr.) A. Gray, two grasses abundant in New Mexico.

USTILAGO LEVIS (Kellerm. & Swingle) Magn.

On *Avena sativa* L.: Shiprock, Aug. 11, 1911, *Standley* 7870, in part; Pecos, Aug. 19, 1908, *Standley* 5075; Farmington, July 18, 1911, *Standley* 7051.

USTILAGO MUHLENBERGIAE P. Henn.

The type was collected at [Las Vegas?] Hot Springs, New Mexico, on "Muhlenbergia Pringlei." That species is not known to occur in New Mexico. The same smut is reported from Arizona on *Muhlenbergia Porteri* Scribn., a species common in New Mexico.

USTILAGO ZEAE (Beckm.) Unger.

On cultivated maize: Pecos, Aug. 25, 1908, *Standley* 5287.

AGARICALES

AGARICUS CAMPESTRIS L.

Reported by Cockerell from Pecos.

CLAUDOPUS NIDULANS (Pers.) Peck

On spruce log: Brazos Canyon, Sept. 2, 1914, *Standley & Bollman* 11059. Determined by Murrill.

COPRINUS ATRAMENTARIUS (Bull.) Fries

Reported from Pecos by Cockerell.

COPRINUS MICACEUS (Bull.) Fries

Reported from Pecos by Cockerell.

CORIOLUS ABIETINUS (Dicks.) Quéel.

On spruce log: Brazos Canyon, Sept. 7, 1914, *Standley & Bollman* 11184. On dead fir: Brazos Canyon, Aug. 30, 1914, *Standley & Bollman* 10897. Determined by Murrill.

CORIOLUS LIMITATUS (Berk. & Curt.) Murrill

[*Trametes limitata* Berk. & Curt.]

The type is said to have been collected in New Mexico by Bigelow. It may, however, have come from Arizona, as Bigelow did not distinguish the two states.

CORIOLUS VERSICOLOR (L.) Quéel.

Lookout Mine, Sierra Co., June 14, 1904, O. B. Metcalfe. Determined by Murrill.

FOMES ELLISIANUS F. W. Anders.

Reported from New Mexico by Murrill (N. Am. Fl. 9: 98. 1908). It grows upon living branches of *Lepargyreia argentea* (Nutt.) Greene.

HYPHOLOMA PECOENSE Cockerell

The type was collected at Pecos, June, 1903, by Dr. M. Grabham.

POLYPORUS ARCULARIUS (Batsch) Fries

Reported from Pecos by Cockerell.

PYROPOLYPORUS EARLEI Murrill

The type was collected by Earle, August, 1900, on "a standing trunk of *Juniperus*," in the Capitan Mts.

PYROPOLYPORUS IGNARIUS (L.) Murrill

Collected in New Mexico by Earle (probably in the Capitan Mts.) according to Murrill (Bull. Torrey Club 30: 111. 1903).

PYROPOLYPORUS PRAERIMOSUS Murrill

The type was collected by Earle, July, 1900, "on *Quercus undulata*," in the Capitan Mts., at an altitude of 2100 meters.

STROPHARIA STERCORARIA Fries

A specimen so determined by Mrs. F. W. Patterson was collected at Pecos by Cockerell.

LYCOPERDALES**BATTAREA LACINIATA** Underw.

The type was collected at Mesilla Park by Cockerell.

CHLAMYDOPUS CLAVATUS Speg.

Three collections from Las Cruces and Mesilla Park are reported by White (Bull. Torrey Club 28: 437. 1901).

CYATHIA HIRSUTA (Schaeff.) White

Brazos Canyon, Aug. 26, 1914, Standley & Bollman 10837.
Determined by Murrill.

GEASTER FLORIFORMIS Rit.

Reported from Las Vegas Hot Springs by Cockerell.

GEASTER HYGROMETRICUS Pers.

Reported from Soledad Canyon, Organ Mts., by Cockerell.

TYLOSTOMA FIMBRIATUM Fries

White (Bull. Torrey Club 28: 434. 1901) reports a specimen collected in New Mexico by Wright. The collection may have come from New Mexico, or it may have been collected in Arizona, Sonora, Chihuahua, or western Texas, for many of Wright's plants labeled "New Mexico" came from those four states.

TYLOSTOMA GRACILE White

The type was collected at Las Cruces by Wooton.

TYLOSTOMA PEDUNCULATUM (L.) Schröt.

Reported from New Mexico (3 collections without specific localities) by White (Bull. Torrey Club 28: 429. 1901).

SPHAEROPSIDALES

(Determined by Dr. David R. Sumstine, unless otherwise noted.)

AMPELOMYCES QUISQUALIS Cesati

On *Erysiphe Cichoracearum* on *Mertensia* sp.: Brazos Canyon, Aug. 25, 1914, Standley & Bollman 10797. On *Erysiphe Cichoracearum*? on *Phacelia heterophylla* Pursh: Beatty's Cabin, Aug. 8, 1908, Standley. Determined by Wilson.

DARLUCA FILUM (Biv.) Cast.

Las Vegas (Cockerell). Determined by Earle.

DIDYMARIA CLEMATIDIS Cooke & Hark.

On *Clematis ligusticifolia* Nutt: Ensenada, Sept. 3, 1914, Standley & Bollman 11078. Determined by Wilson.

PHOMA LUPINI Ellis & Ev.

On *Lupinus aduncus* Greene: Tunitcha Mts., Aug. 8, 1911, Standley 7827. Determined by Fairman.

PHYLLOSTICTA ATRIPLICIS Desm.

On *Chenopodium album* L.: Pecos, Aug. 15, 1908, Standley 5024.

PHYLLOSTICTA CRUENTA Tr.

On *Vagnera amplexicaulis* (Nutt.) Morong: Winsor Creek, Aug. 4, 1908, Standley 4751.

PHYLLOSTICTA SYMPHORICARPI Wint.?

On *Symphoricarpos oreophilus* A. Gray: Brazos Canyon, Aug. 30, 1914, Standley & Bollman 10928 (immature).

SEPTORIA EMACULATA Peck & Clinton

On *Lathyrus decaphyllus* Pursh: Pecos, August, 1908, Standley.

SEPTORIA PISI Westd.

On *Pisum sativum* L.: Pecos, Aug. 22, 1908, Standley 5183.
Determined by Wilson.

SEPTORIA POLYGONORUM Desm.

On *Polygonum buxiforme* Small: Pecos, Aug. 21, 1908, Standley 5157.

SEPTORIA RIBIS Desm.

On *Ribes inebrians* Lindl.: Dulce, Aug. 19, 1911, Standley 8097.

SEPTORIA RUDBECKIAE Ellis & Hark.

On *Ratibida columnifera pulcherrima* (DC.) Woot. & Standl.: Pecos, Aug. 25, 1908, Standley 5293.

MONILIALES

(Determined by Dr. David R. Sumstine.)

CLADOSPORIUM HERBARUM (Pers.) Link

On *Dugaldea Hoopesii* (A. Gray) Greene: Chama, July 10, 1911, Standley 6761. On *Quercus* sp.: Brazos Canyon, Aug. 31,

1914, Standley & Bollman 10988. On *Lepargyreia canadensis* (L.) Greene: Brazos Canyon, Aug. 31, 1914, Standley & Bollman 10987.

MACROSPORIUM SOLANI Ell. & Mart.

On cultivated canteloupe: Mangas Springs, Aug. 11, 1902, Wooton.

MICROSTROMA ALBUM (Desm.) Sacc.

On *Quercus* sp.: Durfey's Well, July 19, 1904, Wooton 3744.

MICROSTROMA JUGLANDIS (Bereng.) Sacc.

On *Juglans major* (Torr.) Heller: 10 miles north of Hermosa, July 15, 1904, Wooton 3749.

POLYTHRINCUM TRIFOLII Kunze

On *Trifolium repens* L.: Near Ensenada, Sept. 3, 1914, Standley & Bollman 11082.

RAMULARIA DECIPIENS Ellis & Ev.

On *Rumex crispus* L.: Pecos, Aug. 25, 1908, Standley 5300.

RAMULARIA GRINDELIAE E. & K.

On *Grindelia aphanactis* Rydb.: Pecos, Aug. 25, 1908, Standley 5302.

RAMULARIA SAMBUCINA Peck

On *Sambucus microbotrys* Rydb.: Beatty's Cabin, Aug. 8, 1908, Standley 4841.

TRICHOTHECIUM ROSEUM Fries

Reported by Cockerell from Mesilla, on dead wood of *Sambucus mexicana* Presl.

TUBERCULARIA VULGARIS Tode

Reported by Cockerell from Placita, near Las Vegas, on *Padus melanocarpa* (A. Nels.) Shafer.